Visualizing and Predicting Heart Diseases with an Interactive Dash Board

Team ID: PNT2022TMID27777

A PROJECT REPORT

Submitted By

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PROJECT REPORT

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1.INTRODUCTION

1.1   Project overview

The leading cause of death in the developed world is heart disease. Therefore, there needs to be work done to help prevent the risks of havinga heart attack or stroke. We will be working with the heart diseaseprediction and for that, we will be looking into the heart disease dataset. From that dataset we will derive various insights that help us know the weight, age of each feature and how they are interrelated to each other. Main aim is to detect the probability of a person that will be affected by a savior heart problem or not.

1.2   Purpose

Heart is one the most vital organs in the human body. When we talk about heart diseases, we can have multiple conditions where the heart is not working the way it should be like blockage in blood vessels. According to many researches that have been conducted through a period of time have found out that heart failure and heart disease has been the cruel cause of death in human beings. What aggravates this situation is that most of thesediseases are being diagnosed at later stages at which it is very difficult to control. But if somehow, we can diagnose these diseases at its early stage, then we can surely cure the disease

2.LITERATURE SURVEY

2.1 Existing problem

In this system, the input details are obtained from the patient. Then from the user inputs, using ML techniques heart disease is analyzed. Now, the obtained results are compared with the results of existing models within the same domain and found to be improved. The data of heartdisease patients collected from the UCI laboratory is used to discoverpatterns with NN, DT, Support Vector machines SVM, and Naive Bayes. Theresults are compared for performance and accuracy with these algorithms. The proposed hybrid method returns results of 87% for F-measure, competing with the other existing methods.

2.2 Reference

- V. Manikantan & S. Latha, "Predicting the Analysis of Heart Disease Symptoms Using Medicinal Data Mining Methods", International Journal on Advanced Computer Theory and Engineering, Volume-2, Issue-2, 2013

- Dr.A.V.Senthil Kumar, "Heart Disease Prediction Using Data Mining preprocessing and Hierarchical Clustering", International Journal of Advanced Trends in Computer Science and Engineering, Volume-4, No.6, 2015.
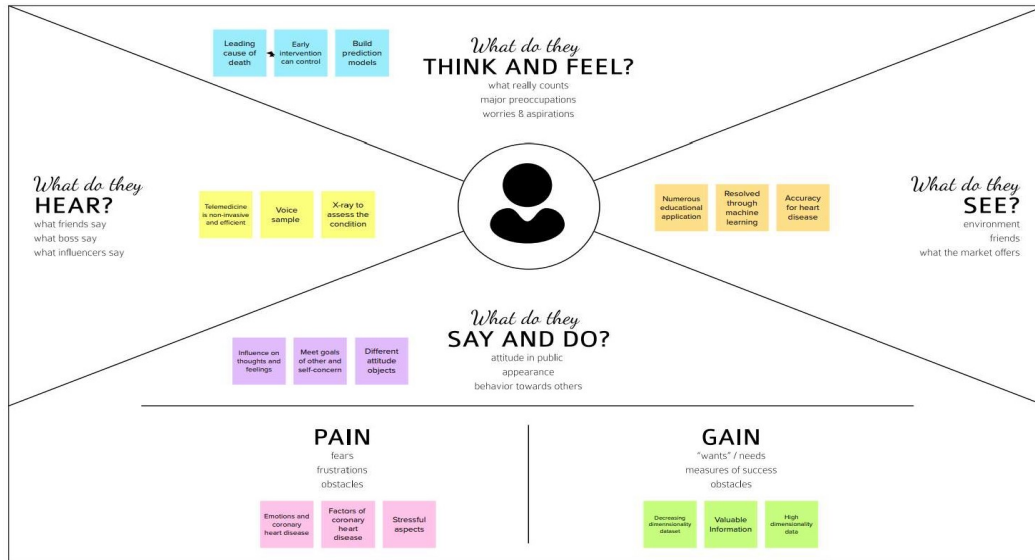
- Uma.K, M.Hanumathappa, "Heart Disease Prediction Using Classification Techniques with Feature Selection Method", Adarsh Journal of Information Technology, Volume-5, Issue-2,

- Himanshu Sharma, M.A.Rizvi, "Prediction of Heart Disease using Machine Learning Algorithms:A Survey",International Journal on Recent and Innovation Trends in Computing andCommunication,Volume5,Issue-8

- S.Ghwanmeh,A.Mohammad,andA.Al-Ibrahim,"Innovative artificialneural networks-based decision support system for heart diseases diagnosis,"Journal of Intelligent Learning Systems and Application.

- Q. K. Al-Shayea, "Artificial neural networks in medical diagnosis," International Journal of Computer Science Issues, vol. 8, no. 2, 2011.

2.3 Problem statement definition

we will be working with the heart disease prediction and for that, we will be looking into the heart disease dataset from that dataset we will derive variousinsights that help us know the weight, age of each feature and how they are interrelated to each other. Main aim is to detect the probability of person thatwill be affected by a savior heart problem or not.

3.IDEATION & PROPOSED SOLUTION

3.1 Empathy Map Canvas

3.2Ideation & Brainstorming

3.2 Proposed Solution

S. No.	Parameter	Description
1.	Problem Statement (Problemto be solved)	The leading cause of death in the developedworld is heart diseases. Therefore ,there needs to be work done to help prevent the risks of having a heart.
2.	Idea / Solution description	It can be prevented by creating an interactive dashboard by data analytics .By doing this wecan predict the fore coming dangerous events.
3.	Novelty / Uniqueness	It can give correct and accurate information.
4.	Social Impact / Customer Satisfaction	In the point of social impact it has a greatinteractive dashboard for predicting the diseases.
5.	Business Model (RevenueModel)	It has a huge revenue when it comes to themarket.
6.	Scalability of the Solution	It is has the easy manipulation of data.

3.3 Problem Solution fit

1. CUSTOMER SEGMENT(S) **CS**	6. CUSTOMER CONSTRAINTS **SL**	5.AVAILABLE SOLUTIONS **AS**
Who is your customer? • smokers • people who have high blood pressure • people who have high cholesterol • people who have high lipoprotein • Diabetic patients • people who have lack of regular exercise • Thrombosis patients • people who shortness of breath • people who have Chest pain, chest tightness, chest pressure and chest discomfort (angina) • people who have Pain in the neck, jaw, throat, upper belly area or back • people who have Pain, numbness, weakness or coldness in the legs or arms if the blood vessels in those body areas are narrowed • people who have overweight	What constraints prevent your customers from taking action or limit their choices of solutions? • Lack of knowledge about heart disease. • Negative thoughts of the customer. • Personal characteristics and physical disability of the customer. • Complex symptoms of heart failure. • Psychological problems. • Lack of support. • Lack of hope in treatment. • Economical background is major constraints that prevent the customer from taking action. • Medical and disease related limitations.	Which solutions are available to the customers when they face the problem or need to get the job done?What have they tried in the past?What pros & cons do these solutions have? There are various solutions available for the people who are affected with heart diseases.They are, • Quit smoking • get cholesterol test periodically • eat plenty of fruits,vegetables and healthy foods with grains,sprouts,nuts etc. • Exercise regularly • Maintain a good physique. If these solutions are properly followed then the people affected with disease can be cured naturally. • But,along with these they have to go for regular medical checkup and test for any heart disease. • If disease is found in heart they need to make arrangements under proper medications.

2. JOBS-TO-BE-DONE/PROBLEMS **J&P**	9. PROBLEM ROOT CAUSE **RC**	7. BEHAVIOUR **BE**
Which jobs-to-be-done (or problems) do you address fro your customers?There could be more than one;explore different slides. • Lives depending on medical support • Financial insecurity • shortness of breath • may feel chest pain,chest tightness,chest pressure	What is the real reason that this problem exists? What is the backstory behind the need to do this job? • Buildup of fatty plaques in the arteries is the most common cause of coronary artery disease. • lack of exercise,obesity and smoking. • Acute aortic insufficiency(AI). • To cure the diseased patients especially to visualize the heart problems and give relief to them. • One backstory is that many children are now affected with hole in the heart and suffer a lot than elders, so this method is initiated. • Heart is the first formed organ when human is formed in the womb so problem in this affects the whole body. • Thus, this visualization is made and any such heart diseases is predicted with an interactive dashboard.	What does your customer do to address the problem and get the job done? • Regular, daily physical activity can lower the risk of heart disease. Physical activity helps control your weight. • A healthy diet can help protect the heart, improve blood pressure and cholesterol, and reduce the risk of type 2 diabetes. • One of the best things you can do for your heart is to stop smoking or using smokeless tobacco.Even if you're not a smoker, be sure to avoid secondhand smoke. • Maintain a healthy weight • Get good quality sleep • Manage stress • High blood pressure and high cholesterol can damage the heart and blood vessels. But without testing for them, you probably won't know whether you have these conditions. Regular screening can tell you what your numbers are and whether you need to take action.

3. TRIGGERS **TR**	10. YOUR SOLUTION **SL**	8. CHANNELS of BEHAVIOUR **CH**
What triggers customers to act? i.e. seeing their neighbour installing solar panels, reading about a more efficient solution in the news. • Lifestyle changes • Lives depending on medical support • need to search for heart specialist with manageable price • need to apply for health insurance • Financial insecurity • Anxiety • shortness of breath • may feel emotional stress • may feel chest pain,chest tightness,chest pressure • feel for fatigue	If you are working on an existing business, write down your current solution first,fill in the canvas, and check how much it fits reality. If you are working on a new business proposition, then keep it blank until you fill in the canvas and come up with a solution that fits within customer limitations, solves a problem and matches customer behaviour. • Heart disease treatment depends on the cause and type of heart damage. Healthy lifestyle habits — such as eating a low-fat, low-salt diet, getting regular exercise and good sleep, and not smoking — are an important part of treatment. • If lifestyle changes alone don't work, medications may be needed to control heart disease symptoms and to prevent complications. The type of medication used depends on the type of heart disease. • Some people with heart disease may need a procedure or surgery. The type of procedure or surgery will depend on the type of heart disease and the amount of damage to the heart.	8.1 ONLINE What kind of actions do customers take online? Extract online channels from #7 • Online appointments with doctors.. • Research about the heart disease they are diagnosed with. • Finding possible natural cures. 8.2 OFFLINE What kind of actions do customers take offline? Extract offline channels from #7 and use them for customer development. • Maintaining proper diet and eating healthy food. • Having adequate amount of sleep. • Maintaining a calm and relaxed mindstate. • Following the suggestions made by the doctors. • Doing exercise and maintaining fitness. • Taking the right doses of pills at the right time mentioned by doctors.
4. EMOTIONS: BEFORE / AFTER **EM** How do customers feel when they face a problem or a job and afterwards? i.e. lost, insecure > confident, in control - use it in your communication strategy & design. • Before a person knows that he/she is affected with any kind of disease , they are happy and do their work normally. • They don`t need to worry about their own body for any problems and do their work normally and comfortably. • But, after a person comes to know about any kind of problems especially a heart disease,he/she becomes • illness • unhealthy • stressed/depressed • uncomfortable with their daily routines. • Lifestyle becomes upside down.		

4.REQUIREMENT ANALYSIS

4.1Functional requirement

FR No.	Functional Requirement(Epic)	Sub Requirement (Story / Sub-Task)
FR-1	User Registration	Registration through Facebook Registration through Gmail Registration through google
FR-2	Account creation	Gmail and password for accountcreation
FR-3	User Confirmation	Confirmation via Email Confirmation via OTP
FR-4	Personal details for account	Name, age, sex, height, weight, previous medical records, etc for healthaccount basic details
FR-5	Regular medical conditionupdation in app	Entry present medical records, symptoms, etc

4.2 Non-Functional requirements

FR No.	Non-Functional Requirement	Description
NFR-1	Usability	Good mobile navigation will boost the usability of the entire product, helping users to enjoy all the features offered. Our solution has better features in navigation such as hamburger menu, Bottom navigation, Top navigation, Cards, Tabs, Gesture-Based Navigation, Full-screen navigation,3D touch. In our app, we're using general Language English to make the app user-friendly
NFR-2	Security	To preserve user trust and device integrity is done by making your app more secure. Our solution proposes 1. Provide the right permissions- Request only the minimum number of permissions necessary for your app to function properly. 2. Store data safely- Store private data with in internal storage 3. Ask for credentials before showing sensitive in formation 4. Keep services and dependencies up to date 5. Apply network security measures 6. Use WebView objects carefully- WebView objects in your app shouldn't let users navigate to sites that are outside of your control.
NFR-3	Reliability	1. Our app is made accessible when ever needed. 2. It Responds within the time frame needed

		3. It is regularly updated or modified as needed by the user. 4. Provide security and privacy to the extent needed by the user. 5. Provide bug free operation that is simple and easily predictable
NFR-4	Performance	1. Our app responds quickly by making application size small, using CDN & app bundles and produces the output and it takes lesser session length 2. Our app provides unique solution than the present system in the software 3. Special team is formed to reply queries of the users 24/7 4. Our app provides real time notifications about the user condition.
NFR-5	Availability	By setting up An Application Performance Monitoring (APM) system that helps to monitor the availability of application. Consistent performance monitoring and optimization help you to tackle issues as quickly as they show up. Our app is designed in such a way that to emphasize availability

PROJECT DESIGN

5.1Data Flow Diagrams

A Data Flow Diagram (DFD) is a traditional visual representation of the information flows within a system. A neat and clear DFD can depict the right amount of the system requirement graphically. It shows how data enter and leaves the system, what changes the information, and where data is stored.
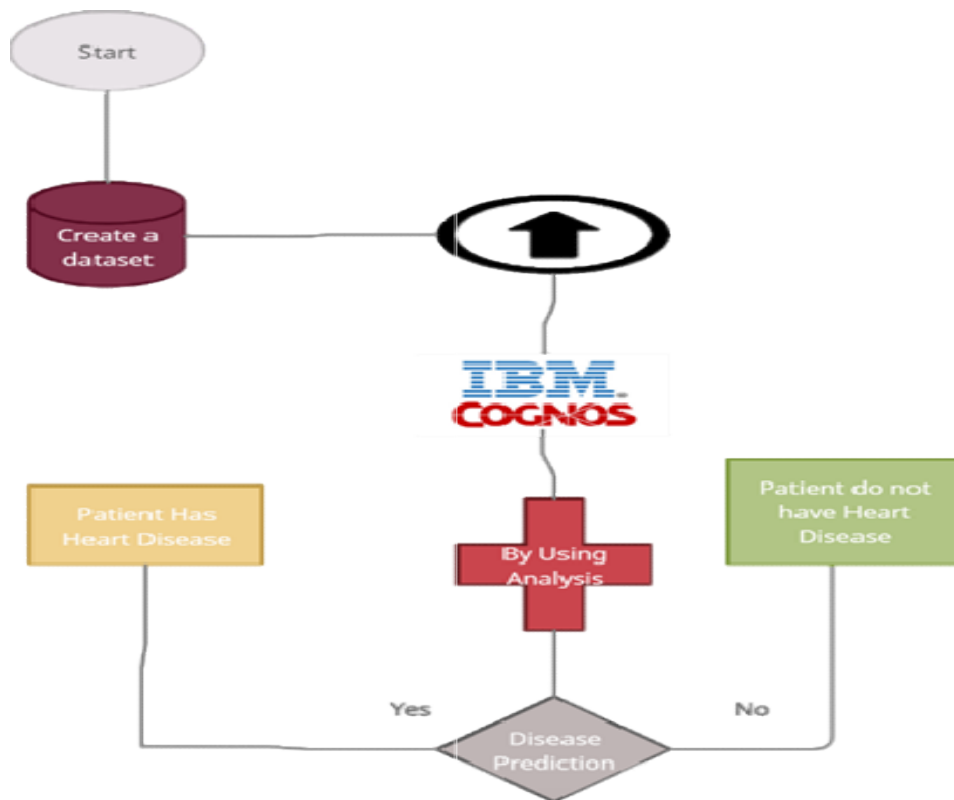
5.2 Solution & Technical Architecture
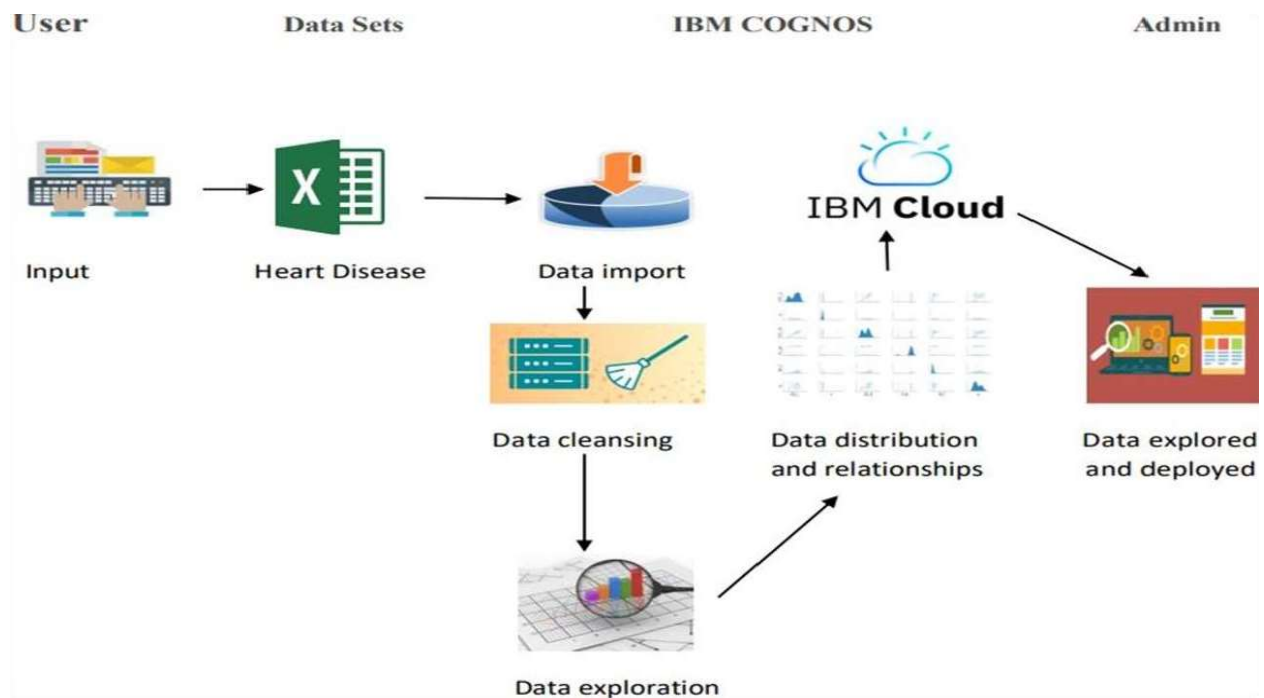
S.No	Component	Description	Technology
1.	User Interface	How user interacts with application e.g., Web UI,	IBM Cognos / Python.
2.	Data Set	The data set prepared for heart disease	Python.
3.	IBM Cognos	Data analytics platform	IBM Watson service
4.	Data Import	Data set is imported in IBM Cognos	IBM Watson Assistant
5.	Data Cleaning	Data is cleaned by using some mathematical techniques such as mean, mode etc.to clean the null	IBM Assistant
6.	Data Exploration	Cleaned data can be explored.	IBM Cognos
7.	Story Card	Data is explored and story card was prepared for visual	IBM Cognos
8.	IBM Cloud	Storage of data	IBM DB2
9.	Data Explored and Deployed	Purpose of External API to explored and deployed	Data deployed to user by UI
10.	Admin	Purpose of Data set model	Recognition of data set model etc.

5.3User Stories

User Type	User Story / Task	Acceptance criteria	Release
	View Doctors - view doctor detail by searching by names or filter by specialty	Using this application, people can known that the speciality doctors.	Sprint-1
Customer (Web user)	Hardware Requirement Laptop or PC I5 processor system or higher 4 GB RAM or higher 128 GB ROM or higher ii. Android Phone (12.0 and above)	These are all the specification available in your PC.	Sprint-2
	Reference- https://ieeexplore. ieee.org/documen t/9619208/	Go and Check our Reference link.	Sprint-1
Customer Care	Query	**You can post your queries in the text box available in that**	**Sprint-1**

User Type	User story /task	Acceptance criteria	Release
Executive		**application.**	
	Toll Free	**Ask your doubts in given number(8365492107).**	**Sprint-1**
	Ratings	**Give your ratings as your wish.**	**Sprint-1**
Administrator	Verification	**Verification through CAPTCHA Verification through I'm not a robot**	**Sprint-1**
	validation	**Reconfirming the new password Sending a two digit number in (Google account) your Old devices, so that you can enter into a new device**	**Sprint-2**
User Type	**User story /task**	**Acceptance criteria**	**Release**
		By entering two digits number.	
	Feedback - send feedback to the Admin.	Please send your feedback tohost.	Sprint-2

6.PROJECT PLANNING & SCHEDULING

6.1Sprint Planning & Estimation

Sprint	Total Story Point	Sprint StartDate	Sprint End Date (Planned)	Story Points Completed	Sprint Release Date (Actual)
Sprint-1	20	15 Oct 2022	18 Oct 2022	20	20 Oct 2022
Sprint-2	20	21 Oct 2022	23 Nov 2022	17	23 Nov 2022
Sprint-3	20	01 Nov 2022	03 Nov 2022	18	04 Nov 2022
Sprint-4	20	10 Nov 2022	14 Nov 2022	19	17 Nov 2022

6.2Sprint Delivery Schedule

Sprint	Functional Requirement(Epic)	User Story Number	User Story / Task	Story Points	Priority	Team Members
Sprint-1	Registration	USN-1	As a user, I can register for the application by entering my email, password, and confirming my password.	3	High	Prathusha Nandhinee Bhuvana Ashwini
Sprint-1		USN-2	As a user, I will receive confirmation email onceI have registered for the application	3	High	Prathusha Nandhinee Ashwini
Sprint-1		USN-3	As a user, I can register for theapplication through Facebook	5	Low	Prathusha Ashwini
Sprint-1		USN-4	As a user, I can register for theapplicationthrough Gmail	3	Medium	Prathusha Nandhinee
Sprint-1	Login	USN-5	As a user, I can log into the application byentering email & password	6	High	Bhuvana Ashwini
Sprint-2	Dashboard	USN-6	Attractive dashboard For the Application	3	Medium	Prathusha Nandhinee Bhuvana Ashwini
Sprint-2		USN-7	Profile - view & update your profile	5	Low	Nandhinee Ashwini
Sprint-2		USN-8	Home - Analyze your Heartproblem	2	High	Prathusha Bhuvana

6.3Reports from JIRA

Burndown Chart:

A burn down chart is a graphical representation of work left to do versus time. It is often used in agile software development methodologies such as Scrum. However, burn down charts can be applied to any project containing measurable progress over time.
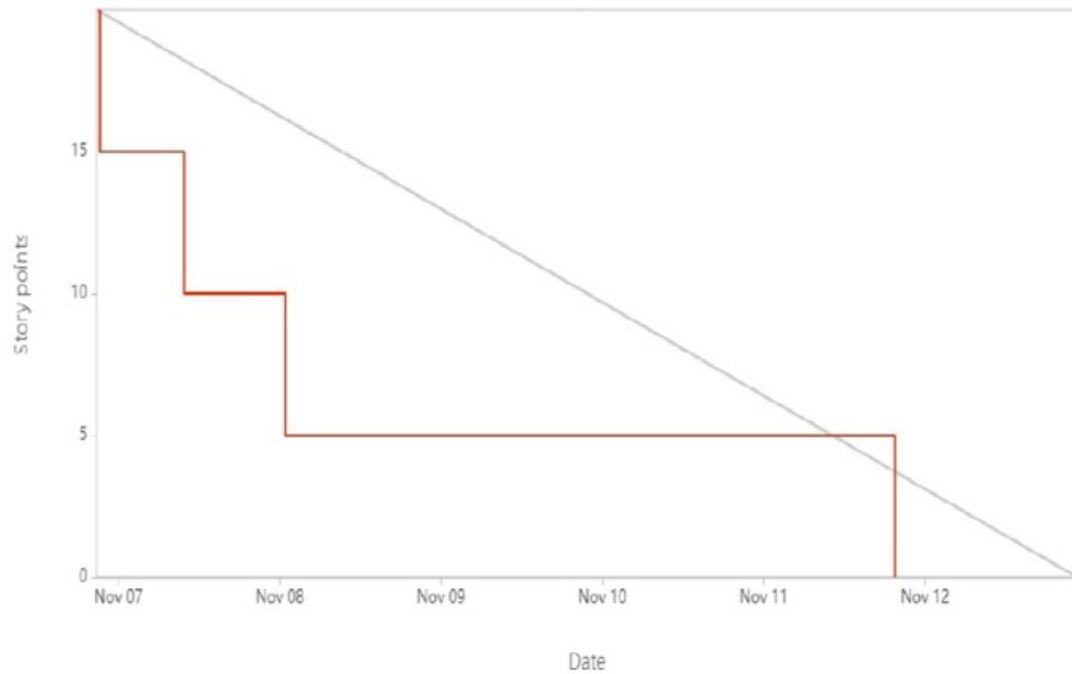
7.CODING & SOLUTIONING

7.1Feature 1

Login and registration page of our website:

A user registration system requires the creation of a user name and password, as well as the answers to other security questions. Many user registration systems allow users to customize their accounts and profiles, while others give users their account information

HTML/Script:

```html
<!DOCTYPE html>
<!-- Created By CodingNepal -->
<html lang="en" dir="ltr">
<head>
<meta charset="utf-8">
<title>Login and Registration Form in HTML | CodingNepal</title>
<link rel="stylesheet" href="css.css">
<meta name="viewport" content="width=device-width, initial-scale=1.0">
</head>
<body>
<div class="wrapper">
<div class="title-text">
<div class="title login">
Login Form
</div>
<div class="title signup">
Signup Form
</div>
</div>
<div class="form-container">
<div class="slide-controls">
<input type="radio" name="slide" id="login" checked>
<input type="radio" name="slide" id="signup">
<label for="login" class="slide login">Login</label>
<label for="signup" class="slide signup">Signup</label>
<div class="slider-tab"></div>
</div>
<div class="form-inner">
<form action="#" class="login">
<div class="field">
<input type="text" placeholder="Email Address" required>
</div>
<div class="field">
```

```html
<input type="password" placeholder="Password" required>
</div>
<div class="field btn">
<div class="btn-layer"></div>
<input type="submit" value="Login">
</div>
<div class="signup-link">
Not a member? <a href="">Signup now</a>
</div>
</form>
<form action="#" class="signup">
<div class="field">
<input type="text" placeholder="Email Address" required>
</div>
<div class="field">
<input type="password" placeholder="Password" required>
</div>
<div class="field">
<input type="password" placeholder="Confirm password" required>
</div>
<div class="field btn">
<div class="btn-layer"></div>
<input type="submit" value="Signup">
</div>
</form>
</div>
</div>
</div>
<script>
const loginText = document.querySelector(".title-text .login"); const loginForm =
document.querySelector("form.login");
const loginBtn = document.querySelector("label.login");
const signupBtn = document.querySelector("label.signup");
const signupLink = document.querySelector("form .signup-link a");
signupBtn.onclick = (()=>{
loginForm.style.marginLeft = "-50%";
loginText.style.marginLeft = "-50%";
});
loginBtn.onclick = (()=>{ loginForm.style.marginLeft =
"0%";
loginText.style.marginLeft = "0%";
});
signupLink.onclick =
(()=>{ signupBtn.click();
return false;
});
```

```
</script> </body>
</html>
```

CSS:
```css
@import
url('https://fonts.googleapis.com/css?family=Poppins:400,500,600,700&display=swap
');
*{
margin: 0;
padding: 0;
box-sizing: border-box;
font-family: 'Poppins', sans-serif;
}
.wrapper{ height:75; width:175%;
background-image:
url('banner.jpg'); backgroundposition:
center; backgroundsize:
cover;
position: absolute;
}
html,body{ display: grid;
height: 100%;
width: 100%;
place-items: center;
background-image: url('banner.jpg');
position:absolute; background-repeat: repeat; background-size:60% ;
}
::selection{ background: #fa4299; color: #fff;
}
.wrapper{
overflow: hidden; max-width: 390px; background: #fff; padding: 30px; borderradius:
5px;
box-shadow: 0px 15px 20px rgba(0,0,0,0.1);
}
.wrapper .title-text{ display: flex; width: 200%;
}
.wrapper .title{ width: 50%;
font-size: 35px; font-weight: 600; text-align: center;
transition: all 0.6s cubic-bezier(0.68,-0.55,0.265,1.55);
}
.wrapper .slide-controls{ position: relative; display: flex;
height: 50px; width: 100%; overflow: hidden;
margin: 30px 0 10px 0;
justify-content: space-between; border: 1px solid lightgrey; border-radius:
5px;
}
```

```css
.slide-controls .slide{ height: 100%;
width: 100%; color: #fff; font-size: 18px;
font-weight: 500; text-align: center;
line-height: 48px; cursor: pointer;
z-index: 1;
transition: all 0.6s ease;
}
.slide-controls label.signup{ color: #000;
}
.slide-controls .slider-tab{ position:
absolute; height: 100%;
width: 50%;
left: 0;
z-index: 0;
border-radius: 5px;
background: -webkit-linear-gradient(left,
#a445b2, #fa4299); transition: all 0.6s
cubic-bezier(0.68,-0.55,0.265,1.55);
}
input[type="radio"]{ display: none;
}
#signup:checked ~ .slider-tab{ left: 50%;
}
#signup:checked ~ label.signup{ color: #fff;
cursor: default; user-select: none;
}
#signup:checked ~ label.login{ color: #000;
}
#login:checked ~ label.signup{ color: #000;
}
#login:checked ~ label.login{ cursor:
default;
user-select: none;
}
.wrapper .form-container{ width: 100%;
overflow: hidden;
}
.formcontainer
.forminner{
display:
flex;
width: 200%;
}
.form-container
.form-inner
form{ width:
```

```
50%;
transition: all 0.6s cubic-bezier(0.68,-0.55,0.265,1.55);
}
.form-inner form .field{
height: 50px;
width: 100%; margin-top:
20px;
}
.form-inner form .field input{
height: 100%;
width: 100%; outline: none;
padding-left: 15px; borderradius:
5px;
border: 1px solid lightgrey;
border-bottom-width: 2px;
font-size: 17px;
transition: all 0.3s ease;
}
.form-inner form
.field
input:focus{
border-color:
#fc83bb;
/* box-shadow: inset 0 0 3px #fb6aae; */
}
.form-inner form .field
input::placeholder{ color:
#999;
transition: all 0.3s ease;
}
form .field
input:focus::placeh
older{ color:
#b3b3b3;
}
.form-inner form .passlink{
margin-top: 5px;
}
.form-inner form
.signup-link{ textalign:
center;
margin-top: 30px;
}
.form-inner form .pass-link a,
.form-inner form .signup-link a{ color: #fa4299;
text-decoration: none;
```

```
}
.form-inner form .pass-link a:hover,
.form-inner form .signup-link a:hover{ textdecoration:
underline;
}
form .btn{ height: 50px; width: 100%;
border-radius: 5px; position: relative; overflow:
hidden;
}
form .btn .btn-layer{ height: 100%;
width: 300%; position: absolute; left: -100%;
background: -webkit-linear-gradient(right,
#a445b2, #fa4299, #a445b2, #fa4299); borderradius:
5px;
transition: all 0.4s ease;;
}
form .btn:hover .btn-layer{ left: 0;
}
form .btn input[type="submit"]{ height: 100%;
width: 100%;
z-index: 1; position: relative; background: none;
border: none; color: #fff; padding-left: 0; borderradius:
5px; font-size: 20px; font-weight: 500;
cursor: pointer;
    }
```

7.2 Feature 2

Dashboard:

A dashboard is a way of displaying various types of visual data in one place. Usually, a dashboard is intended to convey different, but related information in an easy-to-digest form. And oftentimes, this includes things like key performance indicators (KPI)s or other important business metrics that stakeholders need to see and understand at a glance.

```
<!DOCTYPE html>
<html lang="en">
<head>
<meta charset="UTF-8">
<meta http-equiv="X-UA-Compatible" content="IE=edge">
<meta name="viewport" content="width=device-width, initial-scale=1.0">
<title>Dashboard</title>
</head>
<style>
*{
margin: 0;padding: 0; list-style:
```

```css
none;
}
.container{ display:
flex; height: 70px;
justify-content: space-between ; align-items:
center;
padding: 0 10%;
background: rgb(4, 4, 125);
}
ol{
display: flex;
}
ol a{
border-radius: 5px; padding:
8px 20px; margin-left: 10px;
font-size: 16px; color: white;
font-size: 18px; letter-spacing:
1px; cursor: pointer;
text-decoration: none;
transition: all 0.8s;
}
ol .active, ol
a:hover{
background: white; color:
black;
}
</style>
<body>
<div class="container">
<img src="https://playlh.
googleusercontent.com/qSx3mGMLZGDuFDgJT3Ao2qXwypeiuthB80OvuWUg576646T
zW0jXr7_
VhI1PYj_XaU=w240-h480-rw" height="50px"
width="50px" alt="">
<nav>
<ol>
<a href="./dashboard.html" class="active"target="_blank"><li>Dashboard</li></a>
<a href="./report.html" ><li>Report</li></a>
<a href="./story.html"><li>Story</li></a>
<a href="./dashboard.html"><li>Contact Us</li></a>
</ol>
</nav>
</div>
<div class="back">
<iframe
src="https://us1.ca.analytics.ibm.com/bi/?perspective=dashboard&amp;pathRef=.m
```

```
y_folders%2Fproject_heart&amp;closeWindowOnLastView=true&amp;ui_appbar=false
&a
mp;ui_navbar=false&amp;shareMode=embedded&amp;action=view&amp;mode=dashb
oard&a
mp;subView=model0000018465861322_00000002" width="100%" height="700px"
frameborder="0"
gesture="media" allow="encrypted-media" allowfullscreen=""></iframe>
</div>
</body>
</html>
```

7.3 Feature 3

Report:

Report has many other senses as a noun and a verb. A report is a paper, article, announcement, or similar account that contains detailed information that someone has gathered through observation, study, or other research. Sometimes, another noun is used with report to specify what the report is about.

```
<!DOCTYPE html>
<html lang="en">
<head>
<meta charset="UTF-8">
<meta http-equiv="X-UA-Compatible" content="IE=edge">
<meta name="viewport" content="width=device-width, initial-scale=1.0">
<title>Document</title>
</head>
<style>
*{
margin: 0;padding: 0; list-style:
none;
}
.container{ display:
flex; height: 70px;
justify-content: space-between ; align-items:
center;
padding: 0 10%;
background: rgb(4, 4, 125);
}
ol{
display: flex;
}
ol a{
border-radius: 5px; padding:
8px 20px; margin-left: 10px;
font-size: 16px;
```

```
color: white; font-size:
18px;
letter-spacing: 1px; cursor:
pointer;
text-decoration: none; transition:
all 0.8s;
}
ol .active, ol
a:hover{
background: white; color:
black;
}
</style>
<body>
<div class="container">
<img src="https://playlh.
googleusercontent.com/qSx3mGMLZGDuFDgJT3Ao2qXwypeiuthB80OvuWUg576646T
zW0jXr7_
VhI1PYj_XaU=w240-h480-rw" height="50px"
width="50px" alt="">
<nav>
<ol>
<a href="./dashboard.html"
target="_blank"><li>Dashboard</li></a>
<a href="./report.html" class="active" ><li>Report</li></a>
<a href="./story.html"><li>Story</li></a>
<a href="./contact_us.html"><li>Contact Us</li></a>
</ol>
</nav>
</div>
<div class="back">
<iframe
src="https://us1.ca.analytics.ibm.com/bi/?perspective=dashboard&amp;pathRef=.m
y_folders%2Fheart_disease_report&amp;closeWindowOnLastView=true&amp;ui_appb
ar=
false&amp;ui_navbar=false&amp;shareMode=embedded&amp;action=view&amp;mode
=dash
board&amp;subView=model00000184700722bb_00000001" width="100%"
height="720px"
frameborder="0" gesture="media" allow="encrypted-media"
allowfullscreen=""></iframe>
</div>
</body>
</html>
```

7.4 Feature 4

Story:

A story is a type of view. A story is composed of a set of scenes that are displayed in sequence over time. Stories can be used to provide your data with a visual narrative. Stories can help you inform and engage your audience. You can use stories in IBM Cognos Analytics to create scenes that visualize your data and to tell a narrative.

```html
<!DOCTYPE html>
<html lang="en">
<head>
<meta charset="UTF-8">
<meta http-equiv="X-UA-Compatible" content="IE=edge">
<meta name="viewport" content="width=device-width, initial-scale=1.0">
<title>Document</title>
</head>
<style>
*{
margin: 0;padding: 0; list-style:
none;
}
.container{ display:
flex; height: 70px;
justify-content: space-between ; align-items:
center;
padding: 0 10%;
background: rgb(4, 4, 125);
}
ol{
display: flex;
}
ol a{
border-radius: 5px; padding:
8px 20px; margin-left: 10px;
font-size: 16px; color: white;
font-size: 18px;
letter-spacing: 1px; cursor:
pointer;
text-decoration: none; transition:
all 0.8s;
}
ol .active, ol
a:hover{
background: white; color:
black;
```

```html
}
</style>
<body>
<div class="container">
<img src="https://playlh.
googleusercontent.com/qSx3mGMLZGDuFDgJT3Ao2qXwypeiuthB80OvuWUg576646TzW0j
Xr7_
VhI1PYj_XaU=w240-h480-rw" height="50px"
width="50px" alt="">
<nav>
<ol>
<a href="./dashboard.html"
target="_blank"><li>Dashboard</li></a>
<a href="./report.html" ><li>Report</li></a>
<a href="./story.html" class="active"><li>Story</li></a>
<a href="./contact_us.html"><li>Contact Us</li></a>
</ol>
</nav>
</div>
<div class="back">
<iframe src="https://us1.ca.analytics.ibm.com/bi/?perspective=story&amp;pathRef=.my_fo
lders%2Fheart_disease_story&amp;closeWindowOnLastView=true&amp;ui_appbar=false
&amp;ui_navbar=false&amp;shareMode=embedded&amp;action=view&amp;sceneId=model0
00001846cd456a3_00000000&amp;sceneTime=5000" width="100%" height="720px"
frameborder="0"
gesture="media" allow="encrypted-media" allowfullscreen=""></iframe>
</div>
</body>
</html>
```

8.TESTING

8.1Test Cases

Test case 1: Logging in with registered login details.

Test case 2: Logging in with invalid login details.

Test case 3: Registering with existing user's details.

Test case 4: Entering wrong values while filling medical related details.

Test case 5: Producing visualization for given input

8.2User Acceptance Testing

Test case ID	Feature Type	Component	Test Scenario	Pre-Requisite	Steps To Execute	Test Data	Expected Result	Actual Result	Status	Comments	TC for Automation(Y/N)	BUG ID	Executed By
LoginPage_TC_OO1	Functional	Home Page	Verify user is able to see the Login/Signup popup when user clicked on My account button	Stable internet connection, Compatible browser, Login credentials	1.Enter URL and click go 2.Click on My Account dropdown button 3.Verify login/Signup popup displayed or not	localhost:3000/login	Login/Signup popup should display	Working as expected	Pass	Login page displayed successfully	N	1	Mukunthan M
LoginPage_TC_OO2	UI	Home Page	Verify the UI elements in Login/Signup popup	Proper code for UI elements, Elements position, Buttons and Textbox response	1.Enter URL and click go 2.Click on My Account dropdown button 3.Verify login/signup popup with below UI elements: a.email text box b.password text box c.Login button d.New customer? Create account link e.Last password? Recovery password link	localhost:3000/login	Application should show below UI elements: a.email text box b.password text box c.Login button with orange colour d.New customer? Create account link e.Last password? Recovery password link	Working as expected	Fail	Elements are displayed successfully but recovery password button is not present	N	2	Mukunthan M
LoginPage_TC_OO3	Functional	Home page	Verify user is able to log into application with Valid credentials	User credentials, Database with credentials of existing users	1.Enter URL and click go 2.Click on My Account dropdown button 3.Enter Valid username/email in Email text box 4.Enter valid password in password text box 5.Click on login button	Username: test2022@gmail.com password: Testing123	User should navigate to user account homepage	Working as expected	Pass	Logged in successfully	N	3	Arivuselvan M
LoginPage_TC_OO4	Functional	Login page	Verify user is able to log into application with Invalid credentials	User credentials, Database with credentials of existing users	1.Enter URL and click go 2.Click on My Account dropdown button 3.Enter InValid username/email in Email text box 4.Enter valid password in password text box 5.Click on login button	Username: test2022@gmail password: Testing123	Application should show 'Incorrect email or password ' validation message.	Working as expected	Fail	Login failed due to incorrect login details or user not registered	N	4	Manoranjani S

Test case ID	Feature Type	Component	Test Scenario	Pre-Requisite	Steps To Execute	Test Data	Expected Result	Actual Result	Status	Comments	TC for Automation(Y/N)	BUG ID	Executed By
LoginPage_TC_OO4	Functional	Login page	Verify user is able to log into application with Invalid credentials	User credentials, Database with credentials of existing users	1.Enter URL and click go 2.Click on My Account dropdown button 3.Enter Valid username/email in Email text box 4.Enter Invalid password in password text box 5.Click on login button	Username: test2022@gmail.com password: Testing123678686786876876	Application should show 'Incorrect email or password ' validation message.	Working as expected	Fail	Login failed due to incorrect login details or user not registered	N	5	Manoranjani S
LoginPage_TC_OO5	Functional	Login page	Verify user is able to log into application with Invalid credentials	User credentials, Database with credentials of existing users	1.Enter URL and click go 2.Click on My Account dropdown button 3.Enter InValid username/email in Email text box 4.Enter Invalid password in password text box 5.Click on login button	Username: test password: Testing123678686786876876	Application should show 'Incorrect email or password ' validation message.	Working as expected	Fail	Login failed due to incorrect login details or user not registered	N	6	Charulatha R
Dashboard_TC_001	Functional	Dashboard	Verify user is able to check accuracy of the results produced from the data	Dataset of medical reports	1.Enter the website and login 2.Upload the medical reports after logging in 3.Wait for the model to process 4.View accuracy of results in the dashboard 5.View visualisations of the results generated from medical records in visualisations section.	Username: test password: Testing123678686786876876	Application should show possibility of presence or absence of heart disease based on the medical reports given as input	Working as expected	Pass	Dashboard is successfully displayed	N	7	Arivuselvan M
Dashboard_TC_002	Functional	Dashboard	Verify user is able to view the graphs of the results produced from the data	Dataset of medical reports	1.Enter the website and login 2.Upload the medical reports after logging in 3.Wait for the model to process 4.View accuracy of results in the dashboard 5.View visualisations of the results generated from medical records in visualisations section.	Username: test password: Testing123678686786876876	Application should show visualisations of the medical results in the form of graphs in visualisations section	Working as expected	Pass	Visualisations of the results are displayed successfully	N	7	Charulatha R

9.RESULTS

9.1Performance Metrics

1. Hours worked: 50 hours

2. Stick to Timelines: 100%

3. Stay within budget: 100%

4. Consistency of the product: 85%

5. Efficiency of the product: 85%

6. Quality of the product: 85%

10.ADVANTAGES & DISADVANTAGES

ADVANTAGES:

- Smooth User Interface
- Accuracy is achieved quickly

DISADVANTAGES:

- Random forest can be used for both classification and regression tasks,but it is not more suitable for Regression tasks.

11.CONCLUSION

This overview of the project conveys the idea that numerous methods have been investigated for diagnosing cardiovascular disease. Big data, machine learning, and data mining can be used to great success to analyse the prediction model with the highest degree of accuracy. The primary goal of this project is to diagnose cardiovascular disease or heart disease utilizing a variety of techniques and procedures to obtain a prognosis.

12.FUTURE SCOPE

A future update shall comprise of section for viewing renowned cardiologists and scan centres in their city. The obtained output can be further processed and sent to smart devices to provide necessary assistance. Constant monitoring can provide necessary data to recommend to consult a doctor in case of an emergency.

13.APPENDIX

GitHub_Link:https://github.com/IBM-EPBL/IBM-Project-10710-1659198396

ProjectDemo_Link:https://www.uploadlite.com/d/oNNv4bfgqGoK5t